AMENDMENTS TO THE CLAIMS

Claims 11-20 are hereby canceled, and following is a listing of all claims as they are currently worded, showing changes relative to the wording in the patent being reissued. The applicants appreciate the clear guidance of the examiner in this regard.

1. *(amended)* A method for electroseismic prospecting of a subterranean formation, said method comprising the steps of:

(a) selecting a source waveform and corresponding reference waveform, said two waveforms being selected to reduce amplitudes of side lobes
produced by correlating said source waveform with said reference waveform;

(b) generating said source waveform as an electrical signal and transmitting said electrical signal into said subterranean formation;

(c) detecting and recording seismic signals resulting from conversion of said electrical signal to seismic energy in said subterranean formation; [and]

(d) correlating said recorded seismic signals with said reference waveform to produce a correlated seismic record;[.] and

(e) creating an image of the subterranean formation from the correlated seismic record.

2. *(original)* The method of claim 1, wherein said source waveform is constructed from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said elements being pieced together with polarities sequentially specified by a preselected binary code, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation.

3. *(original)* The method of claim 2, wherein the waveform element is a single cycle of a 60 Hz sinusoid.

4. *(original)* The method of claim 2, wherein the waveform element is constructed from selected phases of a three-phase power supply to have a desired frequency less than 60 Hz.

5. *(original)* The method of claim 2, wherein said binary code is pseudo-random, said source waveform has a predetermined length, said length being sufficient to further reduce said correlation side lobes to a predetermined level, said reference waveform is said source waveform, and said correlation is circular correlation.

6. *(original)* The method of claim 5, wherein said binary code is a maximal length shift-register sequence.

7. *(original)* The method of claim 2, wherein said binary code is a maximal length shift-register sequence with said resulting source waveform modified such that negative polarity elements in said source waveform are zeroed, said reference waveform is said source waveform before said negative polarity waveform elements are zeroed, and said correlation is circular correlation.

8. *(amended)* A method for electroseismic prospecting of a subterranean formation, said method comprising the steps of:

(a) constructing a first source waveform and a second source waveform from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation, said elements being pieced together with polarities specified sequentially by one member of a Golay complementary pair of binary sequences in the case of said first source waveform, and by the

second member of said Golay complementary pair in the case of said second source waveform;

(b) generating each of said two source waveforms as an electrical signal, and transmitting each said electrical signal, in turn, into said subterranean formation

(c) detecting and recording seismic signals resulting from conversion of said electrical signals to seismic energy in said subterranean formation;

(d) correlating said recorded seismic signals from each of said source waveforms with said respective source waveform itself; [and]

(e) summing said pair of correlations of said recorded seismic signals and their corresponding source waveform to produce a correlated seismic record; and[.]

(f) creating an image of the subterranean formation from the correlated seismic record.

9. *(original)* The method of claim 8, wherein said waveform element is a single cycle of a 60 Hz sinusoid.

10. *(original)* The method of claim 8, wherein said Golay complementary pair of binary sequences are selected from other Golay pairs using the criteria of smallest autocorrelation side lobe amplitudes prior to summing.

11-20. *(cancelled)*

21. *(twice amended)* A method for electroseismic prospecting of a subterranean formation, said method comprising:

(a) obtaining a source waveform selected to reduce amplitudes of side lobes produced by correlation with a selected reference waveform;

(b) generating the selected source waveform as an electrical signal and transmitting it into the subterranean formation;

(c) detecting and recording seismic signals resulting from conversion of the electrical signal to seismic energy in the subterranean formation;

(d) obtaining a correlated seismic record generated by correlating the seismic signals with the reference waveform; and

(e) obtaining an image of the subterranean formation produced from the correlated seismic record.

22. *(new)* The method of claim 21, wherein said source waveform is constructed from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said elements being pieced together with polarities sequentially specified by a preselected binary code, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation.

23. *(new)* The method of claim 22, wherein the waveform element is a single cycle of a 60 Hz sinusoid.

24. *(new)* The method of claim 22, wherein the waveform element is constructed from selected phases of a three-phase power supply to have a desired frequency less than 60 Hz.

25. *(new)* The method of claim 22, wherein said binary code is pseudo-random, said source waveform has a predetermined length, said length being sufficient to further reduce said correlation side lobes to a predetermined level, said reference waveform is said source waveform, and said correlation is circular correlation.

26. *(new)* The method of claim 25, wherein said binary code is a maximal length shift-register sequence.

27. *(new)* The method of claim 22, wherein said binary code is a maximal length shift-register sequence with said resulting source waveform modified such that negative polarity elements in said source waveform are zeroed, said reference waveform is said source waveform before said negative polarity waveform elements are zeroed, and said correlation is circular correlation.

28. *(amended)* A method for electroseismic prospecting of a subterranean formation, said method comprising:

(a) selecting a source waveform and corresponding reference waveform, said two waveforms being selected to reduce amplitudes of side lobes produced by correlating said source waveform with said reference waveform;

(b) obtaining recorded seismic signals resulting from generation of said source waveform into an electrical signal and transmitting it into said subterranean formation where it was converted to seismic energy;

(c) correlating said recorded seismic signals with said reference waveform to produce a correlated seismic record; and

(d) creating an image of the subterranean formation from the correlated seismic record.

29. *(new)* The method of claim 28, wherein said source waveform is constructed from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said elements being pieced together with polarities sequentially specified by a preselected binary code, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation.

30. *(new)* The method of claim 29, wherein the waveform element is a single cycle of a 60 Hz sinusoid.

31. *(new)* The method of claim 29, wherein the waveform element is constructed from selected phases of a three-phase power supply to have a desired frequency less than 60 Hz.

32. *(new)* The method of claim 29, wherein said binary code is pseudo-random, said source waveform has a predetermined length, said length being sufficient to further reduce said correlation side lobes to a predetermined level, said reference waveform is said source waveform, and said correlation is circular correlation.

33. *(new)* The method of claim 32, wherein said binary code is a maximal length shift-register sequence.

34. *(new)* The method of claim 29, wherein said binary code is a maximal length shift-register sequence with said resulting source waveform modified such that negative polarity elements in said source waveform are zeroed, said reference waveform is said source waveform before said negative polarity waveform elements are zeroed, and said correlation is circular correlation.

35. *(twice amended)* A method for electroseismic prospecting of a subterranean formation, said method comprising:

(a) obtaining two source waveforms constructed by repeating a single element, said element consisting of a single full cycle of a periodic waveform, said periodic waveform having a frequency determined to give desired depth penetration of the subterranean formation, said elements being pieced together with polarities specified sequentially by one member of a Golay complementary pair of binary sequences in the case of one source waveform, and by the second member of the Golay complementary pair in the case of the other source waveform;

(b) generating each of the two source waveforms as an electrical signal and transmitting each said electrical signal, in turn, into the subterranean formation;

(c) detecting and recording seismic signals resulting from conversion of each of the two electrical signals to seismic energy in the subterranean formation;

(d) obtaining a correlated seismic record generated by correlating the seismic signals with the source waveform used to generate them and then summing the correlated record due to one source waveform with the correlated record due to the other source waveform; and

(e) obtaining an image of the subterranean formation produced from the summed correlated seismic record.

36. *(new)* The method of claim 35, wherein said waveform element is a single cycle of a 60 Hz sinusoid.

37. *(new)* The method of claim 35, wherein said Golay complementary pair of binary sequences are selected from other Golay pairs using the criteria of smallest autocorrelation side lobe amplitudes prior to summing.

38. *(amended)* A method for electroseismic prospecting of a subterranean formation , said method comprising:

(a) constructing a first source waveform and a second source waveform from a single element, said element consisting of a single full cycle of a pre-selected periodic waveform, said periodic waveform having a frequency pre-determined to give desired depth penetration of the subterranean formation, said elements being pieced together with polarities specified sequentially by one member of a Golay complementary pair of binary sequence in the case of the first source waveform and by the second member of the Golay complementary pair in the case of the second source waveform;

(b) obtaining recorded seismic signals resulting from generation of each of said two source waveforms as an electrical signal and transmission of each electrical signal, in turn, into the subterranean formation where each was converted to seismic energy.

(c) correlating said recorded seismic signals from each of the two source waveforms with the corresponding source waveform itself, thereby producing two correlated records;

(d) summing the two correlated records to produce a correlated seismic record; and

(e) creating an image of the subterranean formation from the correlated seismic record

39. *(new)* The method of claim 38, wherein said waveform element is a single cycle of a 60 Hz sinusoid.

40. *(new)* The method of claim 38, wherein said Golay complementary pair of binary sequences are selected from other Golay pairs using the criteria of smallest autocorrelation side lobe amplitudes prior to summing.